

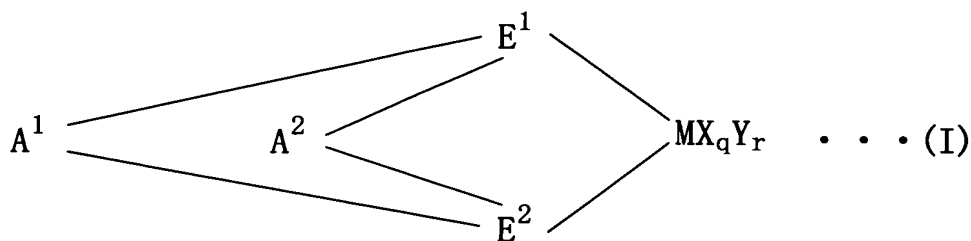
IN THE CLAIMS

The claims are not amended. They are presented here for the Examiner's convenience:

1. (Previously Presented) A process for producing a propylene-based polymer, comprising:

polymerizing propylene in the presence of a polymerization catalyst comprising:

(A) a transition metal compound represented by formula (I):



wherein M is a metal element belonging to Groups 3 to 10 or lanthanoid of the Periodic Table;

E¹ and E² are independently a ligand selected from the group consisting of substituted cyclopentadienyl, indenyl, substituted indenyl, heterocyclopentadienyl, substituted heterocyclopentadienyl, amide group, phosphide group, hydrocarbon groups and silicon-comprising groups, which form a cross-linked structure via A¹ and A²;

X is a ligand capable of forming a σ -bond wherein when a plurality of X groups are present, said X groups are same or different from each other, and are optionally cross-linked with the other X group, E¹, E² or Y;

Y is a Lewis base wherein when a plurality of Y groups are present, said Y groups are same or different from each other, and are optionally cross-linked with the other Y group, E¹, E² or X;

A¹ and A² are divalent cross-linking groups capable of bonding the two ligands E¹ and E² to each other which are same or different from each other, and are independently a C₁ to C₂₀ hydrocarbon group, a C₁ to C₂₀ halogen-comprising hydrocarbon group, a silicon-comprising group, a germanium-comprising group, a tin-comprising group, -O-, -CO-, -S-, -SO₂-, -Se-, -NR¹-, -PR¹-, -P(O)R¹-, -BR¹- or -AlR¹- wherein R¹ is a hydrogen atom, a halogen atom, a C₁ to C₂₀ hydrocarbon group or a C₁ to C₂₀ halogen-comprising hydrocarbon group;

q is an integer of 1 to 5 given by the formula: [(valence of M) - 2]; and

r is an integer of 0 to 3, and

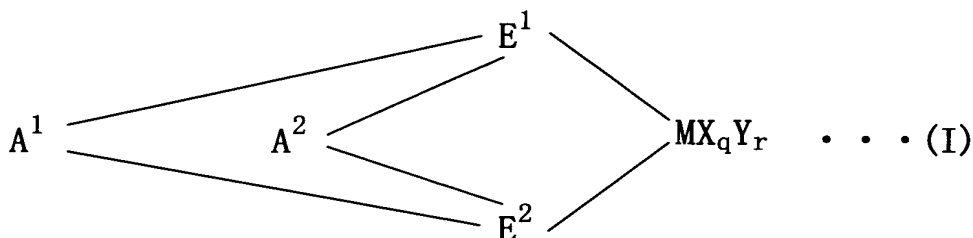
(B) an organoboron compound,

wherein the propylene-based polymer has an intrinsic viscosity of 0.1 to 0.43 dl/g.

2. (Previously Presented) A process for producing a propylene-based polymer, comprising:

copolymerizing propylene with ethylene and/or a C₄ to C₂₀ α-olefin in the presence of a polymerization catalyst comprising:

(A) a transition metal compound represented by formula (I):



wherein M is a metal element belonging to Groups 3 to 10 or lanthanoid of the Periodic Table;

E¹ and E² are independently a ligand selected from the group consisting of substituted cyclopentadienyl, indenyl, substituted indenyl, heterocyclopentadienyl, substituted heterocyclopentadienyl, amide group, phosphide group, hydrocarbon groups and silicon-comprising groups, which form a cross-linked structure via A¹ and A²;

X is a ligand capable of forming a σ-bond wherein when a plurality of X groups are present, said X groups are same or different from each other, and are optionally cross-linked with the other X group, E¹, E² or Y;

Y is a Lewis base wherein when a plurality of Y groups are present, said Y groups are same or different from each other, and are optionally cross-linked with the other Y group, E¹, E² or X;

A¹ and A² are divalent cross-linking groups capable of bonding the two ligands E¹ and E² to each other which are same or different from each other, and are independently a C₁ to C₂₀ hydrocarbon group, a C₁ to C₂₀ halogen-containing hydrocarbon group, a silicon-comprising group, a germanium-comprising group, a tin-comprising group, -O-, -CO-, -S-, -SO₂-, -Se-, -NR¹-, -PR¹-, -P(O)R¹-, -BR¹- or -AlR¹- wherein R¹ is a hydrogen atom, a halogen atom, a C₁ to C₂₀ hydrocarbon group or a C₁ to C₂₀ halogen-comprising hydrocarbon group;

q is an integer of 1 to 5 given by the formula: [(valence of M) - 2]; and

r is an integer of 0 to 3, and

(B) an organoboron compound,

wherein the propylene-based polymer has an intrinsic viscosity of 0.1 to 0.42 dl/g.

Claims 3-7 (Cancelled)

8. (Previously Presented) The process as claimed in Claim 1, wherein M is titanium, zirconium, or hafnium.

9. (Previously Presented) The process as claimed in Claim 1, wherein E¹ and E² are, independently, selected from substituted cyclopentadienyl, indenyl and substituted indenyl.

10. (Previously Presented) The process as claimed in Claim 1, wherein X is selected from a halogen atom, a C₁ to C₂₀ hydrocarbon group, C₁ to C₂₀ alkoxy, C₆ to C₂₀ aryloxy, a C₁ to C₂₀ amide group, a C₁ to C₂₀ silicon-containing group, a C₁ to C₂₀ phosphide group, a C₁ to C₂₀ sulfide group and C₁ to C₂₀ acyl.

11. (Previously Presented) The process as claimed in Claim 1, wherein Y is selected from amines, ethers, phosphines and thioethers.

12. (Previously Presented) The process as claimed in Claim 1, wherein A¹ and A² are independently selected from methylene, ethylene, ethylidene, propylidene, isopropylidene, cyclohexylidene, 1,2-cyclohexylene, vinylidene (CH₂=C=), dimethylsilylene, diphenylsilylene, methylphenylsilylene, dimethylgermylene, dimethylstannylene, tetramethyldisilylene and diphenyldisilylene.

13. (Previously Presented) The process as claimed in Claim 1, comprising polymerizing propylene in the presence of a polymerization catalyst selected from the group consisting of:

(1,2'-ethylene)(2,1'-ethylene) bis(indenyl)zirconium dichloride, (1,2'-methylene)(2,1'-methylene) bis(indenyl)zirconium dichloride, (1,2'-isopropylidene)(2,1'-isopropylidene) bis(indenyl)zirconium dichloride, (1,2'-ethylene)(2,1'-ethylene) bis(3-methylindenyl)zirconium dichloride, (1,2'-ethylene)(2,1'-ethylene) bis(4,5-benzoidenyl)zirconium dichloride, (1,2'-ethylene)(2,1'-ethylene) bis(4-isopropylindenyl)zirconium dichloride, (1,2'-ethylene)(2,1'-ethylene) bis(5,6-dimethylindenyl)zirconium dichloride, (1,2'-ethylene)(2,1'-ethylene) bis(4,7-diisopropylindenyl)zirconium dichloride, (1,2'-ethylene)(2,1'-ethylene) bis(4-phenylindenyl)zirconium dichloride, (1,2'-ethylene)(2,1'-ethylene) bis(3-methyl-4-isopropylindenyl)zirconium dichloride, (1,2'-ethylene)(2,1'-ethylene) bis(5,6-benzoidenyl)zirconium dichloride, (1,2'-ethylene)(2,1'-isopropylidene) bis(indenyl)zirconium dichloride, (1,2'-methylene)(2,1'-ethylene) bis(indenyl)zirconium dichloride, (1,2'-methylene)(2,1'-isopropylidene) bis(indenyl)zirconium dichloride, (1,2'-dimethylsilylene)(2,1'-dimethylsilylene) bis(indenyl)zirconium dichloride, (1,2'-dimethylsilylene)(2,1'-dimethylsilylene) bis(3-methylindenyl)zirconium dichloride, (1,2'-dimethylsilylene)(2,1'-dimethylsilylene) bis(3-n-butylindenyl)zirconium dichloride, (1,2'-dimethylsilylene)(2,1'-dimethylsilylene) bis(3-i-propylindenyl)zirconium dichloride, (1,2'-dimethylsilylene)(2,1'-dimethylsilylene) bis(3-trimethylsilylmethylindenyl)zirconium dichloride, (1,2'-dimethylsilylene)(2,1'-dimethylsilylene) bis(3-phenylindenyl)zirconium dichloride, (1,2'-dimethylsilylene)(2,1'-dimethylsilylene) bis(4,5-benzoidenyl)zirconium dichloride, (1,2'-dimethylsilylene)(2,1'-dimethylsilylene) bis(4-isopropylindenyl)zirconium dichloride, (1,2'-dimethylsilylene)(2,1'-dimethylsilylene) bis(5,6-dimethylindenyl)zirconium dichloride, (1,2'-dimethylsilylene)(2,1'-dimethylsilylene) bis(4,7-di-isopropylindenyl)zirconium dichloride, (1,2'-dimethylsilylene)(2,1'-dimethylsilylene) bis(4-phenylindenyl)zirconium dichloride, (1,2'-dimethylsilylene)(2,1'-dimethylsilylene) bis(3-methyl-4-i-propylindenyl)zirconium dichloride, (1,2'-dimethylsilylene)(2,1'-dimethylsilylene) bis(5,6-benzoidenyl)zirconium dichloride, (1,2'-dimethylsilylene)(2,1'-isopropylidene) bis(indenyl)zirconium dichloride, (1,2'-dimethylsilylene)(2,1'-isopropylidene) bis(3-methylindenyl)zirconium dichloride, (1,2'-dimethylsilylene)(2,1'-isopropylidene) bis(3-i-propylindenyl)zirconium dichloride, (1,2'-dimethylsilylene)(2,1'-isopropylidene) bis(3-n-butylindenyl)zirconium dichloride, (1,2'-dimethylsilylene)(2,1'-isopropylidene) bis(3-trimethylsilylmethylindenyl)zirconium dichloride, (1,2'-dimethylsilylene)(2,1'-isopropylidene) bis(3-trimethylsilylindenyl)zirconium dichloride, (1,2'-dimethylsilylene)(2,1'-isopropylidene) bis(3-phenylindenyl)zirconium dichloride, (1,2'-

dimethylsilylene)(2,1'-methylene) bis(indenyl)zirconium dichloride, (1,2'-dimethylsilylene)(2,1'-methylene) bis(3-methylindenyl)zirconium dichloride, (1,2'-dimethylsilylene)(2,1'-methylene) bis(3-i-propylindenyl)zirconium dichloride, (1,2'-dimethylsilylene)(2,1'-methylene) bis(3-n-butylindenyl)zirconium dichloride, (1,2'-dimethylsilylene)(2,1'-methylene) bis(3-trimethylsilylmethylindenyl)zirconium dichloride, (1,2'-dimethylsilylene)(2,1'-methylene) bis(3-trimethylsilylindenyl)zirconium dichloride, (1,2'-diphenylsilylene)(2,1'-methylene) bis(indenyl)zirconium dichloride, (1,2'-diphenylsilylene)(2,1'-methylene) bis(3-methylindenyl)zirconium dichloride, (1,2'-diphenylsilylene)(2,1'-methylene) bis(3-i-propylindenyl)zirconium dichloride, (1,2'-diphenylsilylene)(2,1'-methylene) bis(3-n-butylindenyl)zirconium dichloride, (1,2'-diphenylsilylene)(2,1'-methylene) bis(3-trimethylsilylmethylindenyl)zirconium dichloride, (1,2'-diphenylsilylene)(2,1'-methylene) bis(3-trimethylsilylindenyl)zirconium dichloride, (1,2'-dimethylsilylene)(2,1'-dimethylsilylene)(3-methylcyclopentadienyl) (3'-methylcyclopentadienyl)zirconium dichloride, (1,2'-dimethylsilylene)(2,1'-isopropylidene)(3-methylcyclopentadienyl) (3'-methylcyclopentadienyl)zirconium dichloride, (1,2'-dimethylsilylene)(2,1'-ethylene)(3-methylcyclopentadienyl) (3'-methylcyclopentadienyl)zirconium dichloride, (1,2'-ethylene)(2,1'-methylene)(3-methylcyclopentadienyl) (3'-methylcyclopentadienyl)zirconium dichloride, (1,2'-ethylene)(2,1'-isopropylidene)(3-methylcyclopentadienyl) (3'-methylcyclopentadienyl)zirconium dichloride, (1,2'-methylene)(2,1'-methylene)(3-methylcyclopentadienyl) (3'-methylcyclopentadienyl)zirconium dichloride, (1,2'-methylene)(2,1'-isopropylidene)(3-methylcyclopentadienyl) (3'-methylcyclopentadienyl)zirconium dichloride, (1,2'-isopropylidene)(2,1'-isopropylidene)(3-methylcyclopentadienyl) (3'-methylcyclopentadienyl)zirconium dichloride, (1,2'-dimethylsilylene)(2,1'-dimethylsilylene)(3,4-dimethylcyclopentadienyl) (3',4'-dimethylcyclopentadienyl)zirconium dichloride, (1,2'-dimethylsilylene)(2,1'-isopropylidene)(3,4-dimethylcyclopentadienyl) (3',4'-dimethylcyclopentadienyl)zirconium dichloride, (1,2'-dimethylsilylene)(2,1'-ethylene)(3,4-dimethylcyclopentadienyl) (3',4'-dimethylcyclopentadienyl)zirconium dichloride, (1,2'-ethylene)(2,1'-methylene)(3,4-dimethylcyclopentadienyl) (3',4'-dimethylcyclopentadienyl)zirconium dichloride, (1,2'-ethylene)(2,1'-isopropylidene)(3,4-dimethylcyclopentadienyl) (3',4'-dimethylcyclopentadienyl)zirconium dichloride, (1,2'-methylene)(2,1'-methylene)(3,4-dimethylcyclopentadienyl) (3',4'-dimethylcyclopentadienyl)zirconium dichloride, (1,2'-methylene)(2,1'-isopropylidene)(3,4-dimethylcyclopentadienyl) (3',4'-

dimethylcyclopentadienyl)zirconium dichloride, (1,2'-isopropylidene)(2,1'-isopropylidene)(3,4-dimethylcyclopentadienyl) (3',4'-dimethylcyclopentadienyl)zirconium dichloride, (1,2'-dimethylsilylene)(2,1'-dimethylsilylene)(3-methyl-5-ethylcyclopentadienyl) (3'-methyl-5'-ethylcyclopentadienyl)zirconium dichloride, (1,2'-dimethylsilylene)(2,1'-dimethylsilylene)(3-methyl-5-ethylcyclopentadienyl) (3'-methyl-5'-ethylcyclopentadienyl)zirconium dichloride, (1,2'-dimethylsilylene)(2,1'-dimethylsilylene)(3-methyl-5-isopropylcyclopentadienyl) (3'-methyl-5'-isopropylcyclopentadienyl)zirconium dichloride, (1,2'-dimethylsilylene)(2,1'-dimethylsilylene)(3-methyl-5-n-butylcyclopentadienyl) (3'-methyl-5'-n-butylcyclopentadienyl)zirconium dichloride, (1,2'-dimethylsilylene)(2,1'-dimethylsilylene)(3-methyl-5-phenylcyclopentadienyl) (3'-methyl-5'-phenylcyclopentadienyl)zirconium dichloride, (1,2'-dimethylsilylene)(2,1'-isopropylidene)(3-methyl-5-ethylcyclopentadienyl) (3'-methyl-5'-ethylcyclopentadienyl)zirconium dichloride, (1,2'-dimethylsilylene)(2,1'-isopropylidene)(3-methyl-5-i-propylcyclopentadienyl) (3'-methyl-5'-i-propylcyclopentadienyl)zirconium dichloride, (1,2'-dimethylsilylene)(2,1'-isopropylidene)(3-methyl-5-n-butylcyclopentadienyl) (3'-methyl-5'-n-butylcyclopentadienyl)zirconium dichloride, (1,2'-dimethylsilylene)(2,1'-isopropylidene)(3-methyl-5-phenylcyclopentadienyl) (3'-methyl-5'-phenylcyclopentadienyl)zirconium dichloride, (1,2'-dimethylsilylene)(2,1'-ethylene)(3-methyl-5-ethylcyclopentadienyl) (3'-methyl-5'-ethylcyclopentadienyl)zirconium dichloride, (1,2'-dimethylsilylene)(2,1'-ethylene)(3-methyl-5-i-propylcyclopentadienyl) (3'-methyl-5'-i-propylcyclopentadienyl)zirconium dichloride, (1,2'-dimethylsilylene)(2,1'-ethylene)(3-methyl-5-n-butylcyclopentadienyl) (3'-methyl-5'-n-butylcyclopentadienyl)zirconium dichloride, (1,2'-dimethylsilylene)(2,1'-ethylene)(3-methyl-5-phenylcyclopentadienyl) (3'-methyl-5'-phenylcyclopentadienyl)zirconium dichloride, (1,2'-dimethylsilylene)(2,1'-methylene)(3-methyl-5-ethylcyclopentadienyl) (3'-methyl-5'-ethylcyclopentadienyl)zirconium dichloride, (1,2'-dimethylsilylene)(2,1'-methylene)(3-methyl-5-i-propylcyclopentadienyl) (3'-methyl-5'-i-propylcyclopentadienyl)zirconium dichloride, (1,2'-dimethylsilylene)(2,1'-methylene)(3-methyl-5-n-butylcyclopentadienyl) (3'-methyl-5'-n-butylcyclopentadienyl)zirconium dichloride, (1,2'-dimethylsilylene)(2,1'-methylene)(3-methyl-5-phenylcyclopentadienyl) (3'-methyl-5'-phenylcyclopentadienyl)zirconium dichloride, (1,2'-ethylene)(2,1'-methylene)(3-methyl-5-i-propylcyclopentadienyl) (3'-methyl-5'-i-propylcyclopentadienyl)zirconium dichloride, (1,2'-ethylene)(2,1'-isopropylidene)(3-methyl-5-i-propylcyclopentadienyl) (3'-methyl-5'-i-

propylcyclopentadienyl)zirconium dichloride, (1,2'-methylene)(2,1'-methylene)(3-methyl-5-i-propylcyclopentadienyl) (3'-methyl-5'-i-propylcyclopentadienyl)zirconium dichloride, (1,2'-methylene)(2,1'-isopropylidene)(3-methyl-5-i-propylcyclopentadienyl) (3'-methyl-5'-i-propylcyclopentadienyl)zirconium dichloride, (1,2'-diphenylsilylene) (2,1'-dimethylsilylene) bis(indenyl) zirconium dichloride, (1,2'-diisopropylsilylene) (2,1'-dimethylsilylene) bis(indenyl) zirconium dichloride, (1,2'-diisopropylsilylene) (2,1'-diisopropylsilylene) bis(indenyl) zirconium dichloride, (1,2'-dimethylsilylene) (2,1'-dimethylsilylene) (indenyl)(3-trimethylsilylindenyl) zirconium dichloride, (1,2'-diphenylsilylene) (2,1'-diphenylsilylene) (indenyl)(3-trimethylsilylindenyl) zirconium dichloride, (1,2'-diphenylsilylene) (2,1'-dimethylsilylene) (indenyl)(3-trimethylsilylindenyl) zirconium dichloride, (1,2'-dimethylsilylene) (2,1'-diphenylsilylene) (indenyl)(3-trimethylsilylindenyl) zirconium dichloride, (1,2'-diisopropylsilylene) (2,1'-dimethylsilylene) (indenyl)(3-trimethylsilylindenyl) zirconium dichloride, (1,2'-dimethylsilylene) (2,1'-diisopropylsilylene) (indenyl)(3-trimethylsilylindenyl) zirconium dichloride, (1,2'-diisopropylsilylene) (2,1'-diisopropylsilylene) (indenyl)(3-trimethylsilylindenyl) zirconium dichloride, (1,2'-diisopropylsilylene) (2,1'-dimethylsilylene) (indenyl)(3-trimethylsilylmethylindenyl) zirconium dichloride, (1,2'-diphenylsilylene) (2,1'-diphenylsilylene) (indenyl)(3-trimethylsilylmethylindenyl) zirconium dichloride, (1,2'-diphenylsilylene) (2,1'-dimethylsilylene) (indenyl)(3-trimethylsilylmethylindenyl) zirconium dichloride, (1,2'-diisopropylsilylene) (2,1'-dimethylsilylene) (indenyl)(3-trimethylsilylmethylindenyl) zirconium dichloride, (1,2'-diisopropylsilylene) (2,1'-diisopropylsilylene) (indenyl)(3-trimethylsilylmethylindenyl) zirconium dichloride, compounds obtained by replacing zirconium in the above-described compounds with titanium or hafnium, and mixtures thereof.

14. (Previously Presented) The process as claimed in Claim 2, wherein M is titanium, zirconium, or hafnium.

15. (Previously Presented) The process as claimed in Claim 2, wherein E¹ and E² are, independently, selected from substituted cyclopentadienyl, indenyl and substituted indenyl.

16. (Previously Presented) The process as claimed in Claim 2, wherein X is selected from a halogen atom, a C₁ to C₂₀ hydrocarbon group, C₁ to C₂₀ alkoxy, C₆ to C₂₀ aryloxy, a C₁ to C₂₀ amide group, a C₁ to C₂₀ silicon-containing group, a C₁ to C₂₀ phosphide group, a C₁ to C₂₀ sulfide group and C₁ to C₂₀ acyl.

17. (Previously Presented) The process as claimed in Claim 2, wherein Y is selected from amines, ethers, phosphines and thioethers.

18. (Previously Presented) The process as claimed in Claim 2, wherein A¹ and A² are independently selected from methylene, ethylene, ethylidene, propylidene, isopropylidene, cyclohexylidene, 1,2-cyclohexylene, vinylidene (CH₂=C=), dimethylsilylene, diphenylsilylene, methylphenylsilylene, dimethylgermylene, dimethylstannylene, tetramethyldisilylene and diphenyldisilylene.

19. (Previously Presented) The process as claimed in Claim 2, comprising copolymerizing propylene with ethylene and/or a C₄ to C₂₀ α-olefin in the presence of a polymerization catalyst selected from the group consisting of:
(1,2'-ethylene)(2,1'-ethylene) bis(indenyl)zirconium dichloride, (1,2'-methylene)(2,1'-methylene) bis(indenyl)zirconium dichloride, (1,2'-isopropylidene)(2,1'-isopropylidene) bis(indenyl)zirconium dichloride, (1,2'-ethylene)(2,1'-ethylene) bis(3-methylindenyl)zirconium dichloride, (1,2'-ethylene)(2,1'-ethylene) bis(4,5-benzindenyl)zirconium dichloride, (1,2'-ethylene)(2,1'-ethylene) bis(4-isopropylindenyl)zirconium dichloride, (1,2'-ethylene)(2,1'-ethylene) bis(5,6-dimethylindenyl)zirconium dichloride, (1,2'-ethylene)(2,1'-ethylene) bis(4,7-diisopropylindenyl)zirconium dichloride, (1,2'-ethylene)(2,1'-ethylene) bis(4-phenylindenyl)zirconium dichloride, (1,2'-ethylene)(2,1'-ethylene) bis(3-methyl-4-isopropylindenyl)zirconium dichloride, (1,2'-ethylene)(2,1'-ethylene) bis(5,6-benzindenyl)zirconium dichloride, (1,2'-ethylene)(2,1'-isopropylidene) bis(indenyl)zirconium dichloride, (1,2'-methylene)(2,1'-ethylene) bis(indenyl)zirconium dichloride, (1,2'-methylene)(2,1'-isopropylidene) bis(indenyl)zirconium dichloride, (1,2'-dimethylsilylene)(2,1'-dimethylsilylene) bis(indenyl)zirconium dichloride, (1,2'-dimethylsilylene)(2,1'-dimethylsilylene) bis(3-methylindenyl)zirconium dichloride, (1,2'-

dimethylsilylene)(2,1'-dimethylsilylene) bis(3-n-butylindenyl)zirconium dichloride, (1,2'-dimethylsilylene)(2,1'-dimethylsilylene) bis(3-i-propylindenyl)zirconium dichloride, (1,2'-dimethylsilylene)(2,1'-dimethylsilylene) bis(3-trimethylsilylmethylindenyl)zirconium dichloride, (1,2'-dimethylsilylene)(2,1'-dimethylsilylene) bis(3-phenylindenyl)zirconium dichloride, (1,2'-dimethylsilylene)(2,1'-dimethylsilylene) bis(4,5-benzoidenyl)zirconium dichloride, (1,2'-dimethylsilylene)(2,1'-dimethylsilylene) bis(4-isopropylindenyl)zirconium dichloride, (1,2'-dimethylsilylene)(2,1'-dimethylsilylene) bis(5,6-dimethylindenyl)zirconium dichloride, (1,2'-dimethylsilylene)(2,1'-dimethylsilylene) bis(4,7-di-i-propylindenyl)zirconium dichloride, (1,2'-dimethylsilylene)(2,1'-dimethylsilylene) bis(4-phenylindenyl)zirconium dichloride, (1,2'-dimethylsilylene)(2,1'-dimethylsilylene) bis(3-methyl-4-i-propylindenyl)zirconium dichloride, (1,2'-dimethylsilylene)(2,1'-dimethylsilylene) bis(5,6-benzoidenyl)zirconium dichloride, (1,2'-dimethylsilylene)(2,1'-isopropylidene) bis(indenyl)zirconium dichloride, (1,2'-dimethylsilylene)(2,1'-isopropylidene) bis(3-methylindenyl)zirconium dichloride, (1,2'-dimethylsilylene)(2,1'-isopropylidene) bis(3-i-propylindenyl)zirconium dichloride, (1,2'-dimethylsilylene)(2,1'-isopropylidene) bis(3-n-butylindenyl)zirconium dichloride, (1,2'-dimethylsilylene)(2,1'-isopropylidene) bis(3-trimethylsilylmethylindenyl)zirconium dichloride, (1,2'-dimethylsilylene)(2,1'-isopropylidene) bis(3-trimethylsilylindenyl)zirconium dichloride, (1,2'-dimethylsilylene)(2,1'-isopropylidene) bis(3-phenylindenyl)zirconium dichloride, (1,2'-dimethylsilylene)(2,1'-methylene) bis(indenyl)zirconium dichloride, (1,2'-dimethylsilylene)(2,1'-methylene) bis(3-methylindenyl)zirconium dichloride, (1,2'-dimethylsilylene)(2,1'-methylene) bis(3-i-propylindenyl)zirconium dichloride, (1,2'-dimethylsilylene)(2,1'-methylene) bis(3-n-butylindenyl)zirconium dichloride, (1,2'-dimethylsilylene)(2,1'-methylene) bis(3-trimethylsilylmethylindenyl)zirconium dichloride, (1,2'-dimethylsilylene)(2,1'-methylene) bis(3-trimethylsilylindenyl)zirconium dichloride, (1,2'-diphenylsilylene)(2,1'-methylene) bis(indenyl)zirconium dichloride, (1,2'-diphenylsilylene)(2,1'-methylene) bis(3-methylindenyl)zirconium dichloride, (1,2'-diphenylsilylene)(2,1'-methylene) bis(3-i-propylindenyl)zirconium dichloride, (1,2'-diphenylsilylene)(2,1'-methylene) bis(3-n-butylindenyl)zirconium dichloride, (1,2'-diphenylsilylene)(2,1'-methylene) bis(3-trimethylsilylmethylindenyl)zirconium dichloride, (1,2'-diphenylsilylene)(2,1'-methylene) bis(3-trimethylsilylindenyl)zirconium dichloride, (1,2'-dimethylsilylene)(2,1'-dimethylsilylene)(3-methylcyclopentadienyl) (3'-methylcyclopentadienyl)zirconium dichloride, (1,2'-dimethylsilylene)(2,1'-isopropylidene)(3-methylcyclopentadienyl) (3'-methylcyclopentadienyl)zirconium

dichloride, (1,2'-dimethylsilylene)(2,1'-ethylene)(3-methylcyclopentadienyl) (3'-methylcyclopentadienyl)zirconium dichloride, (1,2'-ethylene)(2,1'-methylene)(3-methylcyclopentadienyl) (3'-methylcyclopentadienyl)zirconium dichloride, (1,2'-ethylene)(2,1'-isopropylidene)(3-methylcyclopentadienyl) (3'-methylcyclopentadienyl)zirconium dichloride, (1,2'-methylene)(2,1'-methylene)(3-methylcyclopentadienyl) (3'-methylcyclopentadienyl)zirconium dichloride, (1,2'-methylene)(2,1'-isopropylidene)(3-methylcyclopentadienyl) (3'-methylcyclopentadienyl)zirconium dichloride, (1,2'-isopropylidene)(2,1'-isopropylidene)(3-methylcyclopentadienyl) (3'-methylcyclopentadienyl)zirconium dichloride, (1,2'-dimethylsilylene)(2,1'-dimethylsilylene)(3,4-dimethylcyclopentadienyl) (3',4'-dimethylcyclopentadienyl)zirconium dichloride, (1,2'-dimethylsilylene)(2,1'-isopropylidene)(3,4-dimethylcyclopentadienyl) (3',4'-dimethylcyclopentadienyl)zirconium dichloride, (1,2'-dimethylsilylene)(2,1'-ethylene)(3,4-dimethylcyclopentadienyl) (3',4'-dimethylcyclopentadienyl)zirconium dichloride, (1,2'-ethylene)(2,1'-methylene)(3,4-dimethylcyclopentadienyl) (3',4'-dimethylcyclopentadienyl)zirconium dichloride, (1,2'-ethylene)(2,1'-isopropylidene)(3,4-dimethylcyclopentadienyl) (3',4'-dimethylcyclopentadienyl)zirconium dichloride, (1,2'-methylene)(2,1'-methylene)(3,4-dimethylcyclopentadienyl) (3',4'-dimethylcyclopentadienyl)zirconium dichloride, (1,2'-methylene)(2,1'-isopropylidene)(3,4-dimethylcyclopentadienyl) (3',4'-dimethylcyclopentadienyl)zirconium dichloride, (1,2'-isopropylidene)(2,1'-isopropylidene)(3,4-dimethylcyclopentadienyl) (3',4'-dimethylcyclopentadienyl)zirconium dichloride, (1,2'-dimethylsilylene)(2,1'-dimethylsilylene)(3-methyl-5-ethylcyclopentadienyl) (3'-methyl-5'-ethylcyclopentadienyl)zirconium dichloride, (1,2'-dimethylsilylene)(2,1'-dimethylsilylene)(3-methyl-5-ethylcyclopentadienyl) (3'-methyl-5'-ethylcyclopentadienyl)zirconium dichloride, (1,2'-dimethylsilylene)(2,1'-dimethylsilylene)(3-methyl-5-isopropylcyclopentadienyl) (3'-methyl-5'-isopropylcyclopentadienyl)zirconium dichloride, (1,2'-dimethylsilylene)(2,1'-dimethylsilylene)(3-methyl-5-n-butylcyclopentadienyl) (3'-methyl-5'-n-butylcyclopentadienyl)zirconium dichloride, (1,2'-dimethylsilylene)(2,1'-dimethylsilylene)(3-methyl-5-phenylcyclopentadienyl) (3'-methyl-5'-phenylcyclopentadienyl)zirconium dichloride, (1,2'-dimethylsilylene)(2,1'-isopropylidene)(3-methyl-5-ethylcyclopentadienyl) (3'-methyl-5'-ethylcyclopentadienyl)zirconium dichloride, (1,2'-dimethylsilylene)(2,1'-isopropylidene)(3-methyl-5-i-propylcyclopentadienyl) (3'-methyl-5'-i-propylcyclopentadienyl)zirconium

dichloride, (1,2'-dimethylsilylene)(2,1'-isopropylidene)(3-methyl-5-n-butylcyclopentadienyl) (3'-methyl-5'-n-butylcyclopentadienyl)zirconium dichloride, (1,2'-dimethylsilylene)(2,1'-isopropylidene)(3-methyl-5-phenylcyclopentadienyl) (3'-methyl-5'-phenylcyclopentadienyl)zirconium dichloride, (1,2'-dimethylsilylene)(2,1'-ethylene)(3-methyl-5-ethylcyclopentadienyl) (3'-methyl-5'-ethylcyclopentadienyl)zirconium dichloride, (1,2'-dimethylsilylene)(2,1'-ethylene)(3-methyl-5-i-propylcyclopentadienyl) (3'-methyl-5'-i-propylcyclopentadienyl)zirconium dichloride, (1,2'-dimethylsilylene)(2,1'-ethylene)(3-methyl-5-n-butylcyclopentadienyl) (3'-methyl-5'-n-butylcyclopentadienyl)zirconium dichloride, (1,2'-dimethylsilylene)(2,1'-ethylene)(3-methyl-5-phenylcyclopentadienyl) (3'-methyl-5'-phenylcyclopentadienyl)zirconium dichloride, (1,2'-dimethylsilylene)(2,1'-methylene)(3-methyl-5-ethylcyclopentadienyl) (3'-methyl-5'-ethylcyclopentadienyl)zirconium dichloride, (1,2'-dimethylsilylene)(2,1'-methylene)(3-methyl-5-i-propylcyclopentadienyl) (3'-methyl-5'-i-propylcyclopentadienyl)zirconium dichloride, (1,2'-dimethylsilylene)(2,1'-methylene)(3-methyl-5-n-butylcyclopentadienyl) (3'-methyl-5'-n-butylcyclopentadienyl)zirconium dichloride, (1,2'-dimethylsilylene)(2,1'-methylene)(3-methyl-5-phenylcyclopentadienyl) (3'-methyl-5'-phenylcyclopentadienyl)zirconium dichloride, (1,2'-ethylene)(2,1'-methylene)(3-methyl-5-i-propylcyclopentadienyl) (3'-methyl-5'-i-propylcyclopentadienyl)zirconium dichloride, (1,2'-ethylene)(2,1'-isopropylidene)(3-methyl-5-i-propylcyclopentadienyl) (3'-methyl-5'-i-propylcyclopentadienyl)zirconium dichloride, (1,2'-methylene)(2,1'-methylene)(3-methyl-5-i-propylcyclopentadienyl) (3'-methyl-5'-i-propylcyclopentadienyl)zirconium dichloride, (1,2'-methylene)(2,1'-isopropylidene)(3-methyl-5-i-propylcyclopentadienyl) (3'-methyl-5'-i-propylcyclopentadienyl)zirconium dichloride, (1,2'-diphenylsilylene) (2,1'-dimethylsilylene) bis(indenyl) zirconium dichloride, (1,2'-diisopropylsilylene) (2,1'-dimethylsilylene) bis(indenyl) zirconium dichloride, (1,2'-diisopropylsilylene) (2,1'-diisopropylsilylene) bis(indenyl) zirconium dichloride, (1,2'-dimethylsilylene) (2,1'-dimethylsilylene) (indenyl)(3-trimethylsilylindenyl) zirconium dichloride, (1,2'-diphenylsilylene) (2,1'-diphenylsilylene) (indenyl)(3-trimethylsilylindenyl) zirconium dichloride, (1,2'-diphenylsilylene) (2,1'-dimethylsilylene) (indenyl)(3-trimethylsilylindenyl) zirconium dichloride, (1,2'-dimethylsilylene) (2,1'-diphenylsilylene) (indenyl)(3-trimethylsilylindenyl) zirconium dichloride, (1,2'-diisopropylsilylene) (2,1'-dimethylsilylene) (indenyl)(3-trimethylsilylindenyl) zirconium dichloride, (1,2'-dimethylsilylene) (2,1'-diisopropylsilylene) (indenyl)(3-trimethylsilylindenyl) zirconium dichloride, (1,2'-diisopropylsilylene) (2,1'-diisopropylsilylene) (indenyl)(3-trimethylsilylindenyl) zirconium dichloride, (1,2'-

dimethylsilylene) (2,1'-dimethylsilylene) (indenyl)(3-trimethylsilylmethylindenyl) zirconium dichloride, (1,2'-diphenylsilylene) (2,1'-diphenylsilylene) (indenyl)(3-trimethylsilylmethylindenyl) zirconium dichloride, (1,2'-diphenylsilylene) (2,1'-dimethylsilylene) (indenyl)(3-trimethylsilylmethylindenyl) zirconium dichloride, (1,2'-dimethylsilylene) (2,1'-diphenylsilylene) (indenyl)(3-trimethylsilylmethylindenyl) zirconium dichloride, (1,2'-diisopropylsilylene) (2,1'-dimethylsilylene) (indenyl)(3-trimethylsilylmethylindenyl) zirconium dichloride, (1,2'-dimethylsilylene) (2,1'-diisopropylsilylene) (indenyl)(3-trimethylsilylmethylindenyl) zirconium dichloride and (1,2'-diisopropylsilylene) (2,1'-diisopropylsilylene) (indenyl)(3-trimethylsilylmethylindenyl) zirconium dichloride, compounds obtained by replacing zirconium in the above-described compounds with titanium or hafnium, and mixtures thereof.

20. (Previously Presented) The process as claimed in Claim 1, wherein the propylene-based polymer has an intrinsic viscosity of 0.2 to 0.4 dl/g.

21. (Previously Presented) The process as claimed in Claim 2, wherein the propylene-based polymer has an intrinsic viscosity of 0.2 to 0.4 dl/g.